Synchronous E-Learning: Proven Strategies for Teaching at a Distance

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As more courses are offered online, the search for tools and techniques that can enhance learning continues. Synchronous software offers great potential to enhance distance education. Synchronous tools that are commonly included in synchronous classrooms are Voice Over Internet Protocol (VOIP) to conduct two-way audio conversations, electronic chat rooms and instant messaging for text-based communications, polling and feedback tools for instructors and students, presentation areas for PowerPoint, group break out rooms, and application sharing. Although challenges exist for using synchronous software in an online course, these tools hold the potential to enhance the distance learning experience by increasing interactivity, immediacy, social presence, group work, and collaboration.

Learners throughout the world stand to benefit, as optimal strategies for teaching in this environment are developed, tested, enhanced, and shared. This research investigated synchronous online learning classrooms as a means to allow distance educators to build connections by increasing the potential for interaction. Research of this nature is very important to the distance education communities in higher education, K-12, and industry as technology continues to improve and become feasible in these educational settings.

Theoretical Framework

Distance Education research emphasizes the importance of interaction for effective distance teaching (Garrison, Anderson, & Archer, 2001; Hillman, 1999; Moore & Kearsley, 1996; Vrasidas & McIsaac, 1999) where interactions between students and instructors and student-to-student greatly enhance education (Harasim, 1990; Hillman, 1999; Willis, 1995; Moore, 1989). In addition, social interactions required for students to be successful learners are frequently missing (Galusha, 1997; Hara & Khling, 1999; Kubala, 1998). Review of this literature provides insight into two major issues facing distance educators; 1) challenges in providing optimal interaction and 2) a lack of confirmed strategies conducive to learning in synchronous environments. Both of these issues need to be addressed by educational researchers.

We have seen that using synchronous software can be a daunting task for even an experienced distance educator. However, learners throughout the world stand to benefit from the use of such tools. Therefore it is important that methods are tested and guidelines created to assist the distance educator in successfully implementing these tools. The data provided in this study offered an initial framework for the development of a set of guidelines to support the planning and use of synchronous software in higher education instruction. This paper discusses these proven guideline by sharing research and experience in the distance education classroom.

Methods

This study employed a rigorous blend of research methods that examined instructors, students, and support to gain an understanding of the use of synchronous software. The university licensed versions of both Elluminate Live and HorizonLive software packages

Prior to implementation, instructors were trained to use of the synchronous software and provided with a "producer" to help with technology during "live" classroom sessions. All sessions were recorded for later observation. The ways the instructors used the system were not limited by the study, rather each instructor used the system in a way that supported his or her teaching style as well as the learning styles of their students.

This study examined five different cases in which instructors used a SWBCS to enhance the learning experiences of their students. All instructors implemented the system based on their needs and the needs of their students, as well as their teaching styles and the content of their courses.

Data Collection

Students were surveyed twice, once after initiating the synchronous software and another at the end of the semester. The first survey provided a baseline on experience as well as demographics. The second survey examined student perceptions after using the synchronous software throughout the semester. Instructor surveys examined the faculty's perspectives at the end of the semester as well as how they ultimately utilized the synchronous environment.

Each instructor was interviewed prior to course delivery using an interview protocol. Questions focused on their anticipated advantages, challenges, and concerns with implementation of synchronous software.

Through an extensive iterative process, an instrument was developed to document direct observations as well as subjective interpretations of classroom events. The primary categories included pedagogy, interactions, structure, learner autonomy, and tools used. Using a checklist and guidelines, recorded class sessions were rated by independent reviewers.

Thematic analysis of additional data from documents of faculty, students, producers, and the researchers were used to triangulate and validate the other data collected. These documents included positive aspects as well as problems and troubleshooting incidents contained in email, discussion board postings, training materials, support documentation, and a researcher's journal.

Results

Results were analyzed qualitatively based on a theoretical framework that examined interactions, structure, learner autonomy, and the success of the pedagogical strategy used, as well as perceptions of those involved. The results support the use of synchronous web-based course systems to enhance distance courses, showing educators were able to build connections more efficiently and increase the potential for interaction in the online classroom.

Overall, the instructors used strategies that they were comfortable with and that could enhance their classes. They used the collaborative tools of the software to make the sessions active rather than passive. From these few cases a short list of successful teaching strategies was formulated. This list can be used as a starting point for further research on the success of strategies used in online synchronous learning environments. Those strategies used during successful sessions are listed below:

- Mini lectures combined with interactive exercises
- Structured group work

- Case study discussions
- Polling, quizzing and student interactions
- Dissemination of electronic content for immediate discussion, feedback or problem solving
- Reinforcement of ideas, concepts and knowledge
- Collaborative exercises
- Question and answer sessions

The instructors in this study used the SWBCS to enhance their courses in many ways. For the most part, each used the system to solve a problem or address an issue they saw in their current class format. Most of these were well supported by research discussed earlier and are encouraging to those wanting to solve similar problems or increase the quality and success of their distance courses.

The following list highlights the ways in which the majority of the instructors implemented the tools to enhance the distance environment:

- Increase interaction using audio and interactive tools such as hand raising, polling and emoticons
- Increase two-way dialog using both two-way audio and textual chat
- Add immediacy and feedback channels using tools such as emoticons and hand raising in conjunction with audio and chat
- Increase student comprehension using planned exercises, web content, questions and answer sessions and often breakout rooms
- Conduct more natural discussion using the audio feature of the system over the use of textual chat
- Connect to students and have students connect to each other by offering multiple channels for communication in real time
- Group work using break out rooms and the communication tools available in the system

Overall the instructors used the tools to meet the needs of their individual classes and did this successfully. Each instructor had a specific teaching style and a specific goal in mind before beginning the sessions. Throughout the semester, most of the reasons stated for using the SWBCSW were seen put into action in the sessions observed. In addition the students had little problems; they felt the system was of high quality and it assisted them in learning the materials presented in the class. The overall perceptions of the instructors were evident from the end-of-course survey, which provided additional data to support the previous findings. Generally, the five instructors that responded to the survey were positive about the experience both for themselves and for their students. Table 1 shows the summary of results for each category in percentage.

Table 1. Summary of results from Faculty end of course survey

Category	Very Dissatisfied	Dissatisfied	Satisfied	Very Satisfied
Perceptions of student outcomes	0	6 (n=2)	31 (n=11)	63 (n=22)
Overall systemic issues	0	13 (n=7)	37 (n=20)	51 (n=28)
Satisfaction with course as a product	0	3 (n=1)	17 (n=5)	80 n=24)
Overall satisfaction	0	0	40 (n=4)	60 (n=6)

More in-depth review of the student perceptions for each case helped identify the approaches that students felt were productive and useful for their learning environments. Positive student results include:

- Students had positive perceptions about the ability of the SWBCS to increase academic and social interactions with the instructor and others in the class
- Students felt that the added tools provided more opportunities for connections and decreased transactional distance
- Most saw the tools in the SWBCS as high quality and very useful
- As the students became more comfortable with the new technology, they made comments about how well they liked this form of communication to support their learning
- Students stated that synchronous sessions helped to motivate them, enhanced their learning, and allowed them to demonstrate their knowledge

However, these positive results were not unanimous. Some students felt that the certain features of the system did not work as well as they would have liked and were therefore a bit frustrated. For example, the click to talk operation of the VOIP caused some discomfort as well as setting up the microphones. Other issues included problems with the download of the Java client, persistent cookies and firewalls that made it cumbersome to get logged in, and some issues with multiple windows opening during the use of the web push. However, overall most students and instructors were very positive about the use of the SWBCS in their course.

Conclusion

This investigation has focused on five research questions, but many more intriguing questions have arisen. The richness of data laid the groundwork for future investigations into the use of SWBCS in distance education from the perspective of effective teaching strategies and successful use of synchronous online tools.

This research has provided a glimpse into the complex nature of technology used for two-way communication in a learning environment that is real time and multifaceted. Hopefully these findings will lead us to additional discussion and research on best practices for using synchronous technologies for building learning communities and providing successful distance education courses with lower levels of transactional distance.

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Biographical Sketches

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